

## ABSTRACT

Upon formation of an impurity-added silicon film by a low-pressure CVD apparatus, diffusion of an impurity from another similar silicon film which has already been formed over the inside walls of the deposition chamber is suppressed in the following manner. After insertion of a semiconductor substrate having a gate oxide film (insulating film) formed thereover into the deposition chamber of a CVD apparatus (first film forming apparatus), the inside of the deposition chamber is heated while minimizing, relative to a time A required for heating of the inside of the deposition chamber under atmospheric pressure, a time B required for the subsequent heating in the deposition chamber under a pressure adjusted to vacuum or not greater than atmospheric pressure. The formation of an impurity-added silicon film is then started. At this time, the relation between A and B is controlled to satisfy the following equation:  $0.1 \times B \leq A \leq 13 \times B$ .